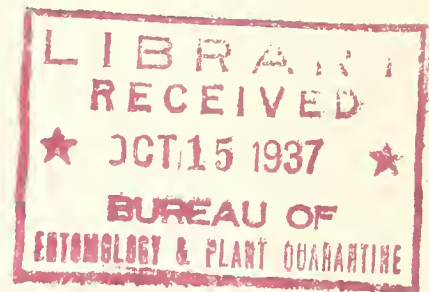


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THE INSECT PEST SURVEY  
BULLETIN



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BUREAU OF  
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# INSECT PEST SURVEY BULLETIN

Vol. 17

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## THE MORE IMPORTANT RECORDS FOR SEPTEMBER

At the last of September grasshoppers were still doing damage from Illinois to southern Minnesota and southward to Missouri and Oklahoma. They also continued to be destructive in the Great Basin. Over much of the infested territory egg laying was well under way.

Scattering reports of damage by wireworms were received from Pennsylvania, North Dakota, and Washington.

During the month outbreaks of the garden webworm occurred in Indiana and Michigan. The principal damage was to alfalfa.

Hessian fly is abundant in volunteer wheat in parts of Ohio, Wisconsin, North Dakota, and eastern Missouri.

Infestation by the European corn borer in 10 counties in Wisconsin was found during the summer. The insect is building up heavy populations in western Pennsylvania.

Heavy damage to small grain and alfalfa seed by Say's stinkbug was reported from Utah and Arizona.

Late in summer a large codling moth population developed from northern Ohio to northeastern Kansas.

The flatheaded apple tree borer was seriously damaging apple trees from Indiana and Nebraska southward to Oklahoma and Missouri.

The oriental fruit moth was more abundant in Ohio than it has been for several years. It was also reported as abundant in Connecticut and as doing some damage in Georgia and Mississippi.

Heavy infestations of the grape leafhopper were reported from Kern County, Calif., and of the grape leaf folder from the San Joaquin Valley.

The walnut caterpillar was reported in destructive numbers from Virginia to Florida and westward to Wisconsin and Oklahoma.

The Mexican bean beetle became abundant in extreme northwestern New York, in Virginia, Ohio, and Indiana, also in the Gulf region.

The harlequin bug is building up heavy populations in southeastern Virginia.

The corn ear worm was reported as causing commercial damage to peanuts in Oklahoma. This is the first report of serious damage by this insect to this crop in Oklahoma.

The worst infestation of tobacco by hornworms ever reported from Maryland occurred this year. Damage was most serious in southern Maryland, where entire fields were stripped before harvest, and severe damage was later done in the tobacco barn.

Infestation by the pink bollworm in the Big Bend area of Texas was heavier and earlier this year than last.

Late in the season considerable defoliation and ragging of cotton by the cotton leaf worm occurred over much of the Cotton Belt.

The bollworm was quite generally prevalent from Georgia to Texas, although upland cotton was practically made before worms became very numerous. Serious damage, however, occurred in parts of Texas.

The locust leaf miner occurred in outbreak numbers in Virginia and North Carolina.

The larch sawfly is at a very low ebb in the Lake States.

The European spruce sawfly has increased to alarming numbers throughout the northern part of the New England States.

Severe damage to lawns by the hairy chinch bug was reported from New York, Connecticut, Rhode Island, and Ohio.

An unusual number of reports from the northeastern fourth of the United States indicates an outbreak of fleas.



THE MORE IMPORTANT ENTOMOLOGICAL FEATURES IN CANADA  
FOR AUGUST AND SEPTEMBER

The light and patchy grasshopper outbreak in southwestern Manitoba was greatly aggravated late in July and early in August by extensive flights of grasshoppers from the southeast, with the result that much head damage was done to late crops and prospects of a severe outbreak in 1938 were considerably increased. In Saskatchewan heavy migrations of grasshoppers in southern areas and their concentrations on late crops elsewhere continued to reduce feed supplies. Preliminary surveys revealed important infestations practically throughout the agricultural area. While these were light in many newly infested areas, the area of severe outbreak had also spread markedly, especially in the northwest. Exceptionally severe and general outbreaks are indicated in the Province for next spring. Severe damage and crop loss occurred in some localities in southern Alberta. Although 1937 was a peak year for grasshopper abundance in the interior of British Columbia, crop losses were small as a result of control efforts.

Moderate infestations of the Mormon cricket were reported in several localities in Manitoba and Alberta.

Outbreaks of the armyworm occurred in parts of eastern Canada and the Prairie Provinces. The outbreak in Nova Scotia and Prince Edward Island was the worst in nearly two decades. Moderate-to-light infestations developed in New Brunswick and southwestern Ontario. With the exception of the southwestern municipalities and a strip eastward along the international boundary as far as Manitoba, practically the whole agricultural area of Manitoba suffered heavy infestations. Outbreaks of different degrees of severity also occurred in Saskatchewan.

Extensive damage to field and garden crops by second-year white grubs occurred over a wide area in southern Quebec.

Considerable loss of wheat from the attacks of the wheat stem sawfly was reported in the prairie sections of Saskatchewan wherever crops matured. Losses in Alberta this season were more extensive and severe than in 1936.

A gradual resurgence of the hessian fly population is occurring in southern Ontario, owing to the practice of early seeding.

Say's stinkbug is quite abundant in Alberta and occurs over a wide area in this Province and Saskatchewan. The area extends from the international boundary, west to Cardston, Alberta, east to East Poplar, Saskatchewan, and north to Calgary, Alberta, and Alask and Ardath, Saskatchewan.

An outbreak of the beet webworm of probably unprecedented severity and

widespread distribution developed in Saskatchewan and increased the seriousness of the feed situation in drought areas by destroying weed growth otherwise available for feed. Outbreaks also occurred in southern Alberta.

Field beans in southern Ontario were infested with the green clover worm, but not to an extent to cause stripping of the plants.

A general decrease in the abundance of the European earwig in infested areas in British Columbia was reported. Imported parasites of the earwigs have been widely distributed in these sections in recent years.

Injury to apples by the first brood of codling moth was reported to be unusually severe in the Niagara district, the Georgian Bay district, and eastern Ontario.

Aphids affecting orchard trees have nowhere been reported in outbreak form. The apple aphid and the rosy apple aphid were noted as of minor importance this year in the Niagara district.

Outbreaks of the apple and thorn skeletonizer, apparently localized, occurred in parts of northern Nova Scotia and Ontario.

The infestation of second-brood oriental fruit moth was low in the Niagara district. An average twig infestation of 3.4 percent was recorded in young peach orchards. The infestation in southwestern Ontario was higher than in 1936.

The pear leaf blister mite is more prevalent than usual, particularly on young pear trees, in parts of southern Ontario. A local severe outbreak occurred in New Brunswick.

A distinct increase in numbers in the first generation of the European spruce sawfly was general in New Brunswick, and in the centre of the Province large areas were beginning to show defoliation. In Quebec new severe attacks on spruce occurred in Bonaventure County, and heavy samples of larvae were received from Kamouraska and Montmagny Counties. West of the St. Lawrence River the sawfly is now known to extend from Lake Saint John westward to Lake Temiskaming.

The black-headed budworm is evenly distributed and fairly abundant from Saskatchewan to the Gaspé, with local concentrations in northern Algoma.

Increased infestation and damage to balsam fir by the balsam woolly aphid has developed in the Maritime Provinces.

The larch sawfly has increased in numbers in parts of Nova Scotia and New Brunswick. An infestation was discovered south of Silverton, British Columbia, 62 miles farther west than previously recorded.



GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Illinois. W. P. Flint (September 20): In most sections of the State there has been a marked decrease in the numbers of grasshoppers from August 20 to September 20. Some sections still have moderately heavy infestations. Egg laying is now in full progress, with the weather ideal for the deposition of eggs.

Wisconsin. E. L. Chambers (September 20): Practically every county reported serious damage to certain crops--alfalfa, tobacco, orchard, and garden; and 52 out of 71 counties spread more than 10,500 tons of bait. Serious damage is still being reported.

Minnesota. A. G. Ruggles and assistants (September): Grasshoppers are abundant in the southern third of the State.

Iowa. H. E. Jaques (September 24): Grasshoppers are still very abundant throughout much of Iowa, but their present damage, with the exception of garden and some other fall crops, has been quite negligible. We have recently taken a number of specimens of Schistocerca lineata Scudd. in Henry County. This is a new record for this species in the eastern half of the State.

Missouri. L. Haseman (September 23): During September grasshoppers have continued to attract attention; in fact, with the scarcity of rain over most of the State and the shortage of wild vegetation, they have tended to move onto late corn, fruit trees, and garden crops, more perhaps than earlier in the summer. Through central Missouri, Melanoplus mexicanus Sauss. is now by far the most abundant and active species. The second brood is maturing, mating, and laying eggs at this time. M. differentialis Thos. is present in numbers around the edges of cornfields and other tall vegetation, and likewise is mating and ovipositing. Since about the first of September very few of the two-lined grasshoppers (M. bivittatus Say) have been observed. Unusual numbers of the Carolina locust (Dissosteira carolina L.) have been collecting in bare places, being more abundant than I have seen them any time during the past several years. Our common red-legged grasshopper (M. femur-rubrum Deg.) in central Missouri, appears with M. mexicanus at the rate of about 1 to 10 of mexicanus.

Kansas. H. R. Bryson (September 25): Grasshoppers are still quite abundant and are a threat to the early sown wheat. Alfalfa fields in localities of very low rainfall have been considerably injured. Egg deposition is taking place at a rapid rate.

Nebraska. M. H. Swenk (September 22): While the corn crop has passed the stage where grasshoppers may damage it seriously, damage has been rather heavy to late summer seedings of alfalfa and the early seedings of winter wheat and rye. Over 1,000 tons of bait materials have been used in the last 30

days. Use of bait has been particularly heavy in the southwestern and western third of the State, although large quantities have been used throughout the entire winter wheat-growing section.

Oklahoma. C. F. Stiles (September 18): Grasshoppers are congregating in most places and depositing eggs. However, on the west side of the State they are doing serious damage to fall-planted wheat. Alfalfa is also being seriously damaged in some of the central counties. Considerable poisoning is being done in the western counties. The species most common are M. differentialis and M. mexicanus.

Utah. C. J. Sorenson (September 20): M. femur-rubrum is very abundant in Millard, Cache, and Box Elder Counties. M. packardii Scudd. is very abundant in Sanpete, Cache, Juab, and Millard Counties. M. bivittatus is very abundant in Sanpete, and M. mexicanus in Tooele, Millard, and Juab Counties. Camnula pellucida Scudd. is very abundant in Tooele County.

G. F. Knowlton (September 10): Grasshoppers are more abundant in most parts of Cache County than they have been for several years. They are damaging alfalfa seriously in North Farmington, east of Layton, and southwest of Salt Lake City, in northern Utah. Eight hundred acres of alfalfa and several thousand acres of range land were heavily infested on ranches along Indian Creek, in San Juan County.

#### WIREWORMS (Elateridae)

Pennsylvania. M. D. Leonard (September 22): Reported to have been very injurious to various vegetable crops, especially tomatoes, in Chester County this summer.

North Dakota. J. A. Munro (September 17): A survey has been conducted in potato fields in Traill, Grand Forks, Walsh, and Pembina Counties. Some fields show only a small percentage of the tubers injured, while others in nearby areas show injury as high as 68 percent. The most serious infestations have been found in the Hoople and Crystal vicinities of Walsh and Pembina Counties. The predominating species appears to be Ludius aereipennis Kby.

Washington. E. W. Jones (September 23): Limonius canus Lec. was found to be damaging fall spinach and lettuce early in September at Walla Walla.

#### JAPANESE BEETLE (Popillia japonica Newm.)

Connecticut. W. E. Britton (September 23): Several cases of rather severe grub injury to lawns have come to our attention. Heretofore most of the damage has been caused by the adults to foliage and flowers. Adults have been received for identification from Greenwich, New Haven, and Woodmont, and several lots of larvae from New Haven.

New Jersey. C. H. Hadley (August): Heretofore feeding by beetles on the fruit of grapes has not been observed, and it was thought that such feeding did not occur. However, on August 13, extensive feeding by beetles on bunches of grapes was observed in a vineyard at Holmdel.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

Connecticut. W. E. Britton (September 23): Grubs are now injuring lawns, often in association with those of Anomala orientalis Wtrh. and P. japonica, particularly in the New Haven region.

ORIENTAL BEETLE (Anomala orientalis Wtrh.)

Connecticut. W. E. Britton (September 23): The grubs of this insect continue to damage untreated lawns in New Haven and West Haven. Many separate lots of grubs have been received for identification and information regarding treatment.

WHITE-FRINGED BEETLE (Naupactus leucoloma Boh.)

Alabama. J. M. Robinson (September 19): Adults are still depositing eggs in the infested area in Covington and Geneva Counties. Some have deposited as many as 1,400 eggs.

FULLER'S ROSE BEETLE (Pantomorus godmani Crotch)

Georgia. T. L. Bissell (September 17): This weevil is abundant, possibly abnormally so, feeding on Lespedeza bicolor, soybeans, and coffee weed at Experiment.

A TENEBRIONID (Pelecophorus densicollis Horn)

Washington. M. H. Hatch (September 22): Enormous numbers of adults were seen swarming in the sagebrush just east of Prosser on September 20. At times in the past this species has been so abundant as to clog irrigation ditches between Prosser and Kennewick.

A FALSE WIREWORM (Eleodes sp.)

Kansas. H. R. Bryson (September 26): The false wireworm has been reported causing considerable injury to wheat in Kansas, as far east as Saline. Deficient rainfall in the wheat district and much early sown wheat are contributing to the amount of injury.

ARMYWORM (Cirphis unipuncta Haw.)

Maine. H. B. Peirson (September 14): A large flight of moths occurred at Bar Harbor August 25.

Rhode Island. A. E. Stene (September 21): Late in August we had an outbreak of armyworms in Providence County, more severe than the earlier ones in Kent and Washington Counties. A large millet field was destroyed, and the caterpillars marched to an adjoining field which fortunately was an old pasture where they found little food. Here also parasitic flies were abundant and hardly a caterpillar could be found without from 1 to 10 or even 15 eggs attached.



Oklahoma. F. A. Fenton (September 20): Armyworms and several species of cutworms are unusually numerous and are cutting down the young wheat plants in many fields.

WHITE-LINED SPHINX (Sphinx lineata F.)

Maine. H. B. Peirson (August): This moth has been seen abundantly this year hovering over flowers in gardens in central and southern Maine. Numerous inquiries have also been received concerning it from various places in the State, it being often mistaken for a hummingbird.

Michigan. R. Hutson (September 20): Has been reported from all over the State.

Iowa. H. E. Jaques (September 24): Has been very abundant in both the larval and adult stages throughout the State. The larvae in many cases are feeding on purslane and other weeds, so that their presence has not created a serious problem.

C E R E A L A N D F O R A G E - C R O P I N S E C T S

W H E A T

HESSIAN FLY (Phytophaga destructor Say)

Ohio. T. H. Parks (September): While the infestation in the 1937 wheat crop was very light, eggs are now abundant on volunteer wheat in some counties showing a very low infestation in July.

Wisconsin. E. L. Chambers (September 20): Once so abundant that it resulted in the abandoning of winter wheat raising in the State, the hessian fly is making its appearance on grain after many years' absence. Eggs and larvae observed on volunteer grain in Dane and Jefferson Counties.

North Dakota. J. A. Munro (August 6): Specimens collected on one of the Station plots at Fargo. Some of the plots are infested as high as 50 percent--Hope Reward cross. (September 17): An examination of most of the varietal wheat plantings on the station grounds brought the average infestation rather low, about 4 percent.

Missouri. L. Haseman (September 23): Summer and fall stubble surveys indicate a scarcity of live flaxseeds over a considerable part of Missouri. However, throughout the northeastern and most of the eastern and southeastern parts of the State they are present in sufficient numbers to cause worry, where growers found conditions favorable for seeding early. Over most of the State, however, scarcity of rainfall is holding back seeding or, at least, wheat sprouting, so that it now appears that comparatively little wheat in this State will be up and exposed to flies even where they are abundant enough to cause worry.

Kansas. H. R. Bryson (September 25): Hessian fly is not depositing eggs at this writing.

CHINCH BUG (Blissus leucopterus Say)

Illinois. W. P. Flint (September 20): Very spotted and moderately heavy infestations of chinch bugs exist in many small areas in the south-central and southern parts of the State. The latter part of August and first of September have been very dry, and while these insects appeared late in the season they are in most cases developed sufficiently to enable them to hibernate in the adult stage.

Kansas. H. R. Bryson (September 25): Chinch bugs are present in considerable numbers in sorghum fields but are doing no damage.

APPLE GRAIN APHID (Rhopalosiphum prunifoliae Fitch)

Nebraska. M. H. Swenk (September 22): Wheat plants in Frontier County are being killed out by the apple grain aphid.

Correction--In the Insect Pest Survey Bulletin Vol. 17, September 1, 1937, No. 7, page 342, regarding the sawfly in Ohio, by E. J. Udine, the heading should read Black Grain Stem Sawfly (Trachelus tabidus F.), instead of European Wheat Stem Sawfly (Cephus pygmaeus L.)

CORN

CORN EAR WORM (Heliothis obsoleta F.)

Pennsylvania. M. D. Leonard (September 22): C. A. Thomas reports that corn ear worm was scarce in eastern Pennsylvania this season.

Illinois. W. P. Flint (September 20): A heavy infestation developed late, building up to a maximum during September.

Wisconsin. E. L. Chambers (September 20): Has been reported doing damage to chrysanthemums in several commercial florist establishments in Milwaukee.

Tennessee. L. B. Scott (September 3): Very abundant in central Tennessee. Damage has been severe in corn and tomatoes, but probably more severe in corn.

Kansas. H. R. Bryson (September 25): Abundant in sorghum heads.

Utah. G. F. Knowlton (September 6): Infestation was heavy in corn, but to date rather light in tomatoes at Castle Dale and Huntington. Corn ear worms have damaged most of the sweet corn at Duchesne and Price, and 10 percent of the tomatoes were damaged in one field examined at Price.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

Connecticut. N. Turner (September 20): Late sweet corn at the Mt. Carmel Farm



was unusually heavily infested, about 90 percent of the ears being attacked. We have several reports of similar damage in southern Connecticut. Unsprayed dahlias were also heavily infested, dissections showing as many as 73 borers in a single plant. Many second-instar larvae are present and a few cast pupal skins, indicating that there may be a partial third generation this year. Injury to gladiolus has been reported, and larvae in stalks received from Westport.

Pennsylvania. R. M. Baker (September): The infestation in Erie and Crawford Counties has been building up until, on a recent survey, 30 percent of the cornstalks in some fields were found to be infested. The infestations in Centre, Clinton, and Lycoming Counties are showing only a very slight increase.

Wisconsin. E. L. Chambers (September 20): More than 60 fields of corn were found infested in 10 counties bordering on Lake Michigan.

#### CORN ROOTWORM (Diabrotica longicornis Say)

Connecticut. W. E. Britton (September 21): Adults damaged corn by shredding the husks and eating the kernels at Lakeville. Twelve were submitted for identification.

#### ALFALFA

##### GARDEN WEBWORM (Loxostege similalis Guen.)

Indiana. J. J. Davis (September 25): More abundant and destructive to alfalfa than for a number of years, destroying a large acreage of this year's sowing of alfalfa in the northern two tiers of counties. The first report came from Lagrange County, August 26, and by September 2 the webworms had eaten three-fourths of all the new alfalfa seeding in the county. Reports continued through the month of September, most of them coming in early September.

Michigan. R. Hutson (September 20): The garden webworm is destroying alfalfa seedlings in southern Michigan.

Oklahoma. C. F. Stiles (September 18): Has completely defoliated many of the alfalfa fields throughout the central part of the State. Cotton in some instances has also been damaged and where food has been scarce, this pest has fed on a variety of plants. This is one of the worst outbreaks that has ever been observed in Oklahoma.

##### ALFALFA CATERPILLAR (Eurymus eurytheme Bdv.)

California. C. S. Morley (September 3): The butterflies were very numerous and in the Kern Lake district larvae injured half-grown alfalfa to the extent that several hundred acres had to be cut before maturity in order to stop the invasion.

ALFALFA WEEVIL (Hypera postica Gyll.)

Utah. C. J. Sorenson (September 20): Alfalfa weevil very abundant in Piute County. Serious damage in 1937.

California. A. E. Michelbacher (September 20): Larval and adult populations continue to be very small. In the San Joaquin Valley on September 17 a few individuals were collected in two fields, while in the San Francisco Bay area a few were taken in a single field.

GRAPE COLASPIS (Colaspis brunnea F.)

Arizona. H. F. Tate (September 20): There has been a serious outbreak of this beetle on seed alfalfa this fall. There are 10,000-12,000 acres of seed alfalfa in Yuma County.

SAY'S STINKBUG (Chlorochroa sayi Stal)

Utah. C. J. Sorenson (September 20): Severe damage; 50 percent to barley and considerable damage to first-crop alfalfa seed in New Castle, Iron County, and in Millard County. Moderately abundant to very abundant. In Washington County, moderately abundant, with damage to sugar-beet seed.

Arizona. C. D. Lebert (September 2): Inspector Mendenhall reports 30 to 35 percent injury to seed alfalfa from C. sayi and plant bug, Lygus sp., injury in the Gila Valley and near Safford.

TARNISHED PLANT BUG (Lygus pratensis L.)

Arizona. H. F. Tate (September 20): There has been a serious outbreak of the tarnished plant bug on seed alfalfa this fall.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Kentucky. W. A. Price (September 24): Severe leafhopper injury to alfalfa in the northern section of the State.

CLOVER

GREEN CLOVER WORM (Plathypena scabra F.)

Ohio. N. F. Howard (September 20): At Columbus during the early part of August green clover worm was rather scarce, but in September it was found to be quite numerous, although not as abundant as some years.

FRUIT INSECTS

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

Ohio. T. H. Parks (September): Codling moth developed into a problem principally in Lawrence County on the Ohio River, and in Lucas and Ottawa Counties in northern Ohio. The month of August was dry, and bait-pan catches at Columbus and Toledo showed increased moth activity between August 10 and 20. This was followed by injurious entrances after the middle of August. Orchards checked in central and eastern Ohio show very low infestation.

Michigan. R. Hutson (September 20): The second brood was not so severe as was expected.

Missouri. L. Haseman (September 23): During September there has been a steady emergence of third-brood moths with an unusually sharp pickup in abundance in northwestern Missouri during the last few days of August.

Missouri and Kansas. H. Baker (August 31): The second brood appears to have caused more damage in northwestern Missouri and northeastern Kansas than any other one brood since the spring brood of 1934. Well sprayed orchards show many stings and poorly sprayed ones are very wormy. Greatly increased bait-traps catches of moths which began August 27, indicate that third-brood damage may be heavy if weather conditions are favorable.

YELLOW-NECKED CATERPILLAR (Datana ministra Drury)

Missouri. L. Haseman (September 23): A second generation appeared in September. The larvae are now largely full fed and where the foliage of apple has not had a good spray coverage a good deal of damage to the foliage has been done.

APPLE LEAFHOPPERS (Cicadellidae)

Massachusetts. M. D. Leonard (September 22): Leafhoppers, Typhlocyba pomaria McAtee, are very injurious in at least one large orchard in the State and presumably abundant in others, according to an authentic report received during August.

Connecticut. P. Garman (September 21): Infestation by the white apple leafhopper (T. pomaria) is irregular; some orchards heavily infested, others not at all.

Virginia. A. M. Woodside (September 20): The white apple leafhopper is present in large numbers in many orchards of Augusta County, but no severe infestations have been observed.

Missouri. L. Haseman (September 23): During September the various species of leafhoppers on apple have been unusually abundant and injurious to the foliage. There seems to have been a rapid increase of leafhoppers during



the last few weeks. This, combined with the scarcity of rain, caused considerable drop of the Jonathan apples early in September, though during the middle and latter part of September where Jonathans were not picked, the dropping of the fruit largely stopped.

FLATHEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Indiana. J. J. Davis (September 25): Continues to be reported from many parts of the State damaging apple and maple.

Missouri. L. Haseman (September 23): Although adults were more abundant earlier in the summer than we have ever seen them in Missouri, there is really less damage showing up during September than occurred during the past two or three falls. Unfortunately, there are plenty of the borers in weakened trees and developing on limbs and exposed trunks in healthy trees, but far less than we expected.

Nebraska. M. H. Swenk (September 22): Complaints of damage to fruit and shade trees, principally ash, elm, willow, and flowering crab apple, were received from August 20 to September 22 from several counties.

Oklahoma. F. A. Fenton (September 20): Continues to be the most important tree-boring insect on shade trees. Reports are being received from widely scattered parts of the State.

ROUNDHEADED APPLE TREE BORER (Saperda candida F.)

Missouri. L. Haseman (September 23): At Columbia the young larvae hatched during August and by early September most of them were through the outer bark feeding on the cambium. By the middle of September, many of these had developed tunnels 2 and 3 inches in length, and the grubs were over  $\frac{1}{2}$  inch long. In some orchards they have been unusually abundant, and where not removed promptly seriously damaged both young and bearing trees.

PEACH

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Georgia. O. I. Snapp (September 4): Jarring records showed a considerable increase in adult curculios in peach orchards at Fort Valley, central Georgia, early in September. An average of 1.5 beetles per tree were taken by jarring on September 4. This is more than at any time since April 3, when adults were appearing from hibernation. Weather conditions have been favorable for the development of the second generation, and the sudden increase of adults in peach orchards is believed to be due largely to the recent emergence of second-generation adults from the soil. Many of the beetles caught on September 4 were clean and looked to be new individuals. Seventy percent of the first-generation females deposited second-generation eggs, which is more than usual.

Nebraska. M. H. Swenk (September 22): Reported attacking plums in Sheridan County, September 6.

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (September 21): Infestation in fruit varies from 10 percent or less to 50 percent.

Georgia. O. I. Snapp (September 9): Attacked flowering peach trees planted on streets of Fort Valley. Many terminals of these trees have been damaged.

Ohio. T. H. Parks (September): More abundant than for several years. The Elberta peach crop was infested in varying degrees, 1 bushel analyzed at Columbus showing 26 percent of the fruits carrying larvae.

Mississippi. C. Lyle (September 24): Complaints of injury to peach twigs were received from Waynesboro on August 31 and from Minter City on September 2.

PEACH BORER (Conopia exitiosa Say)

Georgia. O. I. Snapp (September 9): Weather conditions have been favorable for the development of adults during the last month in central Georgia. The general infestation is moderate.

Michigan. R. Hutson (September 20): Numerous at St. Joseph, Eau Claire, South Haven, Paw Paw, and Grand Rapids.

Missouri. L. Haseman (September 23): Surprisingly scarce in peach trees throughout central Missouri.

RASPBERRY AND BLACKBERRY

RASPBERRY CANE BORER (Oberea bimaculata Oliv.)

Wisconsin. E. L. Chambers (September 20): Has been found quite generally distributed on raspberry by the nursery inspectors this summer.

PACIFIC MITE (Tetranychus pacificus McG.)

California. C. L. Quick (August 6): Found on native species, Rubus parviflorus, on river flat at elevation of about 4,800-4,900 feet in Mt. Diablo, Stanislaus National Forest, Tuolumne County. The damage noted was general yellowing and defoliation.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

Missouri. L. Haseman (September 23): During the last days of August and throughout September, leafhoppers on grapes increased greatly in numbers in central Missouri and leaves on the more susceptible varieties were badly spotted by feeding. Late sprays, however, largely eliminated the brood of immature hoppers.

Utah. G. F. Knowlton (September 10): Have killed from 50 to 95 percent of



the leaves on most Virginia creepers observed recently in northern Utah. Certain varieties of grapes have been similarly damaged.

California. C. S. Morley (September 3): Severely injured vineyards in the northern part of Kern County. Some growers are still dusting for protection to the later varieties.

GRAPE LEAF FOLDER (Desmia funeralis Hbn.)

California. R. E. Campbell (September 11): Becoming injurious again in Tulare and Fresno Counties. Last year very serious damage was done to more than 100 acres, and at present at least 1,000 acres are threatened.

A GRAPE LEAF SKELETONIZER (Harrisina sp.)

Arizona. M. D. Leonard (September 22): H. F. Tate, of the University of Arizona, writes under date of September 17 that only one small outbreak of the grape leaf skeletonizer occurred this season.

GRAPE THRIPS (Drepanothrips reuteri Uzel)

California. S. F. Bailey (September 1): Rather severe injury has shown up to grapes in the San Joaquin Valley.

CURRENT

CURRENT APHID (Myzus ribis L.)

Utah. G. F. Knowlton (September 2): Red currant leaves are heavily infested and badly cupped at Oakley.

PECAN

PECAN WEEVIL (Curculio caryae Horn)

Georgia. O. I. Snapp (September 3): Abundant on pecan at Fort Valley, central Georgia. As many as 15 were taken from 4 trees today by jarring.

PECAN INSECTS (Lepidoptera)

Florida. J. R. Watson (September 22): The pecan nut casebearer (Acrobasis caryae Grote) and the hickory shuck worm (Laspeyresia caryana Fitch) are doing about their usual amount of damage to pecans.

WALNUT

WALNUT CATERPILLAR (Datana integerrima G. & R.)

Virginia. C. R. Willey (September 17): Much more numerous in Richmond and vicinity than usual. The hosts attacked were black walnut, English walnut, and pecan.

Florida. J. R. Watson (September 22): Somewhat scarcer than usual.

Kentucky. W. A. Price (September 24): A high percentage of walnut trees throughout the State show damage.

Wisconsin. E. L. Chambers (September 20): Walnut trees throughout southern Wisconsin were completely defoliated late in August and early in September.

Missouri. L. Haseman (September 23): Throughout practically the entire State the second-generation larvae ate the foliage from walnut, hickory, and pecan trees. Early in September larvae forced to migrate in search of food in central Missouri fairly carpeted the ground around walnut trees that were stripped. Many medium-sized trees had from 15 to 50 colonies of these worms feeding on them. This insect has been serious in recent years but never has it done the damage that it did this fall. The season is late enough so that no serious injury will be done to the trees. In many places the larvae were so abundant that most of the later colonies died of starvation, though great numbers have gone into winter quarters.

Oklahoma. C. F. Stiles (September 18): The second brood has defoliated a large percentage of the pecan and walnut trees throughout the State. This is the second time that these trees have been defoliated this season. The growers are considerably worried about the future of the pecan industry as many of the trees are weakened and will die during the coming year.

Mississippi. C. Lyle (September 24): Specimens were received from Shuqualak on September 16 and from Grenada on September 21.

#### CITRUS

##### CITRUS THRIPS (Scirtothrips citri Moul.)

California. R. S. Woglum (September): Causing severe damage in many lemon groves, especially in the interior areas from San Fernando to Corona. In not a few orchards this insect is having a greater influence on the coming set of lemons than all other pests combined.

##### CITRUS WHITEFLY (Dialeurodes citri Ashm.)

Alabama. J. M. Robinson (September 19): Abundant in central and southern Alabama.

Louisiana. H. L. Dozier (August): Very abundant on young lemon foliage at Opelousas.

##### LEAF-FOOTED BUG (Leptoglossus phyllopus L.)

Florida. J. R. Watson (September 22): Attacking ripening Satsumas as usual.

##### CALIFORNIA RED SCALE (Chrysomphalus aurantii Mask.)

California. R. S. Woglum (September): Many orange and lemon orchards through-

out the warmer foothill areas are showing a heavy scale increase, and in the case of oranges, the scale is pitting the fruit.

FLORIDA RED SCALE (Chrysomphalus aonidum L.)

Louisiana. I. J. Becnel (September): A light infestation was found in the State University Satsuma grove at Baton Rouge.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Mississippi. C. Lyle (September 24): H. Gladney reports 4 light infestations in Harrison County. The scale is also present in Jackson.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Louisiana. I. J. Becnel (September): Infestations are severe in many groves in Plaquemines Parish. They are especially heavy in neglected groves.

T R U C K - C R O P I N S E C T S

VEGETABLE WEEVIL (Listroderes obliquus Klug)

Alabama. J. M. Robinson (September 19): The vegetable weevil is moderately abundant.

Mississippi. C. Lyle (September 24): One specimen of the vegetable weevil, taken from cotton at Decatur, was sent to this office on September 7.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata F.)

North Carolina. Z. P. Metcalf (September 20): Damage severe in the western half of the State, principally to dahlias and roses.

Georgia. T. L. Bissell (September 16): From one to five beetles were caught nightly in a trap at Experiment.

Florida. M. D. Leonard (September 22): Reported to me recently as doing considerable damage to several vegetable crops south of Miami.

Ohio. T. H. Parks (September): Over 50,000 of these beetles were caught in 1 electric light trap between August 15 and September 10 at Columbus. The trap was exposed near plantings of corn.

N. F. Howard (September 20): Very abundant in central Ohio during the season. In one instance larvae were in lima bean pods that were touching the soil.

Missouri. L. Haseman (September 23): During the early part of September there were heavy swarms of both striped (D. vittata F.) and spotted cucumber beetles throughout central Missouri. At present they are feeding on the silks of late corn and are boring into beans. Some are eating holes in apples.



CARROT BEETLE (Ligyris gibbosus Deg.)

Kansas. H. R. Bryson (September 25): This insect has caused some injury in Kansas practically all summer. A recent report was received from Spearville, where it was injuring root crops, zinnias, marigolds, and other flowers. Unusually abundant at lights all the year.

Washington. R. S. Lehman (September 23): The carrot beetle has been doing considerable damage to fall lettuce in the vicinity of Walla Walla. The adults are chewing the roots of the plants.

SOUTHERN GREEN STINKBUG (Nezara viridula L.)

Louisiana. C. L. Stracener (September): Green stinkbugs are severely injuring late peas.

FALSE CHINCH BUG (Nysius ericae Schill.)

Utah. G. F. Knowlton (September 8): False chinch bugs have damaged grain, spinach, peas, and several other garden crops in parts of Sanpete and Emery Counties.

MOLE CRICKETS (Gryllidae)

Florida. J. R. Watson (September 22): Mole crickets are doing their usual damage to truck-crop seedbeds that are being prepared for the winter season.

Louisiana. C. L. Stracener (September): Mole crickets have been reported as seriously injuring fall gardens.

POTATO AND TOMATO

HORNWORMS (Protoparce spp.)

California. J. C. Elmore (September 21): The tomato hornworm was destructive to tomato plants near San Dimas. From one to three larvae were present on every plant.

Utah. G. F. Knowlton (September 6): Tomato hornworms are damaging tomato vines at Castle Dale and Huntington, in Emery County.

CORN EAR WORM (Heliothis obsoleta F.)

California. A. E. Michelbacher (September 20): In a part of central California the larvae are seriously infesting tomatoes. In Yolo and Sacramento Counties, despite rather extensive control programs, the infestation in many fields ranged from 10 to 20 percent. In one field near Davis the infestation was slightly more than 40 percent. In other areas, such as the Brentwood and Gilroy districts, most of the infestations are small.

TOMATO PINWORM (Gnorimoschema lycopersicella Busck)

California. J. C. Elmore (September 21): Most of the tomato fields in southern

California

contain only a trace of pinworm, with few cases of actual commercial damage at this time. Maximum infestations have reached only 15 to 35 percent in the Riverside, Santa Ana, San Pedro, and San Fernando areas.

POTATO PSYLLID (Paratrioza cockerelli Sulc.)

Arizona. M. D. Leonard (September 22): H. F. Tate, under date of September 17, writes that the potato psyllid did not show up in sufficient numbers to justify control measures.

Utah. G. F. Knowlton (September 18): Damage has not been severe in northern Utah up to this time.

POTATO APHID (Illinoia solanifolii Ashm.)

New Jersey. T. L. Guyton (September 15): Numerous on tomato plants.

BEANS

MEXICAN BEAN BEETLE (Epilachna varivestis Muls.)

Rhode Island. A. E. Stone (September 21): Present in about usual numbers.

New York. N. Y. State Coll. Agr. News Letter (September 21): A correspondent from Niagara Falls sent specimens on September 14, with the statement that the insects had all but destroyed his snap beans. This indicates that this pest has reached the northwestern section of the State in destructive numbers.

Virginia. H. G. Walker (September 25): Very abundant in many bean fields in Elizabeth City County and rather abundant in some fields around Norfolk and on the Eastern Shore of Virginia.

Ohio. N. F. Howard (September 20): It has been more numerous in central Ohio than average, but probably not as injurious as it was some years ago. Along the Ohio River at South Point, the beetle was extremely numerous and injurious earlier in the season, but a small area in that section suffered from drought and heat during August and the early part of September and the infestation was greatly reduced.

Indiana. J. J. Davis (September 25): Has ruined crops in scattered localities in the State. There has been a gradual increase as the season advanced and perhaps the pest is prepared to pass the winter in larger numbers than for several years.

Alabama. J. M. Robinson (September 19): The Mexican bean beetle is moderately abundant at Auburn.

Mississippi. L. G. Goodgame (September 24): Causing heavy losses of beans in the northeastern part of the State.

Utah. G. F. Knowlton (September 6): Injury was present but light in Castle Dale,



Emery County. In Carbon County, central Utah, the insect has completely defoliated many patches of green and pole beans at Price and has caused considerable damage at Wellington.

C. J. Sorenson (September 20): Mexican bean beetle moderately abundant in Santa Clara, Washington County, southwestern Utah.

BANDED CUCUMBER BEETLE (*Diabrotica balteata* Lec.)

Georgia. T. L. Bissell (September 16): Two beetles were caught in a light trap at Experiment on August 20 and on September 11. This species is not common in this locality.

Florida. J. R. Watson (September 22): Reported as doing severe damage in the southern part of the State, particularly in Dade County.

Louisiana. L. O. Ellisor (September): At Baton Rouge the banded cucumber beetle has gradually increased in numbers since early spring and is by far the most abundant and destructive species of Diabrotica present. Damage to fall-planted beans and potatoes is particularly severe and in some areas control measures are being applied.

California. J. C. Elmore (September 21): Numerous on string-bean foliage, skeletonizing the leaves, at Santa Ana, Orange County.

BEAN LEAF SKELETONIZER (*Autographa egea* Guen.)

California. J. C. Elmore (September 21): Numerous on bean foliage at Santa Ana, Orange County. Enough larvae present to soon cause complete defoliation.

POTATO LEAFHOPPER (*Empoasca fabae* Harr.)

Virginia. M. D. Leonard (September 22): Several insecticide dealers recently reported that leafhoppers were abundant on beans on the Eastern Shore this summer, but the amount of actual damage was not determined.

CABBAGE

IMPORTED CABBAGE WORM (*Pieris rapae* L.)

Michigan. M. D. Leonard (September 22): A severe infestation was reported by correspondence on a large acreage of cabbage at Menthos, presumably from some time in August into at least the early part of September.

Minnesota. A. G. Ruggles and assistants (September): Very abundant in Martin, Kittson, and Washington Counties.

Utah. G. F. Knowlton (September 6): Damage was extensive to cabbage throughout Emery County and worms were damaging cabbage at Price, in Carbon County.

CABBAGE LOOPER (Autographa brassicae Riley)

New York. M. D. Leonard (September 22): The infestation has been general and from moderate to severe on the extensive cauliflower crop in eastern Suffolk County. This started with the fall crop early in August, running through to date, with several short periods of lessening of larval activity because of rains.

Virginia. H. G. Walker (September 25): An outbreak started at Norfolk about 3 or 4 weeks ago, but a high percentage of the loopers died from a disease before they had done much damage.

Michigan. M. D. Leonard (September 22): A severe infestation on a large acreage of cabbage at Menasha was reported, presumably from some time in August into at least the early part of September.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Virginia. H. G. Walker (September 25): Harlequin bugs appear to be more abundant and more generally distributed than they have been for the last 2 years in Norfolk; however, they have not caused much damage.

C. R. Willey (September 17): During the last few days this pest has apparently "swarmed" Richmond flower gardens. We have had several phone calls, and specimens have been brought in, and we have heard indirectly of occurrence in various gardens.

Mississippi. C. Lyle (September 24): Harlequin cabbage bugs were collected on turnips at Starkville on August 30. Complaints of injury to turnips and collards have been received from Tupelo, Grenada, Durant, and Meridian.

SQUASH

SQUASH BUG (Anasa tristis Deg.)

Ohio. N. F. Howard (September 20): Moderately abundant at Columbus but not so injurious as in some years.

Missouri. L. Haseman (September 23): During the early part of September there was a rapid increase in the number of squash bugs on late cucumbers and squashes in central Missouri. At this time most of the last generations are in the later nymphal instars and adult stage.

Utah. G. F. Knowlton (September 3): Has destroyed most of the squash plants in gardens at Price, Carbon County. This area has only recently become infested, this being the most severe damage experienced in the county.

C. J. Sorenson (September 20): Very abundant at Ivins, Washington County. Destroyed 90 percent of cantaloups and other melons.

PICKLEWORM (Diaphania nitidalis Stoll)

Ohio. N. F. Howard (September 20): At Columbus the pickleworm was present on summer squash in the experimental plots earlier in the month.

TURNIP

TURNIP APHID (Rhopalosiphum pseudobrassicae Davis)

Kansas. H. R. Bryson (September 25): Aphids are abundant on turnips.

PEANUTS

CORN EAR WORM (Heliothis obsoleta F.)

Oklahoma. C. F. Stiles (September 18): The foliage of one 12-acre field of peanuts in Okfuskee County has been seriously injured. This is the first time this insect has seriously damaged peanuts in Oklahoma.

A SCARABAEID (Ataenius cognatus Lec.)

Alabama. J. M. Robinson (September 19): Reported attacking peanuts at Dadeville on August 14.

Correction--The beetle damaging turf in Massachusetts, reported in the August 1, 1937, Insect Pest Survey Bulletin (p. 323) as A. cognatus has been determined by O. L. Cartwright as A. falli Hinton, a recently described species.

LETTUCE

ZEBRA CATERPILLAR (Mamestra picta Harr.)

Idaho and Oregon. R. W. Haegele (September 23): Scattered infestations are appearing in the lettuce fields in Payette and Washington Counties in western Idaho and in Malheur County, eastern Oregon. The larvae range from newly hatched to  $\frac{1}{2}$  inch in length and are causing some damage. There are about 1,000 acres of lettuce in the infested district and control is being attempted.

CARROT

SEED-CORN MAGGOT (Hylemyia cilicrura Rond.)

New York. R. W. Leiby (September 7): A heavy infestation all but destroyed a 2-acre field of carrots in Wayne County late in August. The maggots fed on carrots one-third grown. Bred to the adult stage, they proved to be the seed-corn maggot.



PEPPER

PEPPER WEEVIL (Anthonomus eugenii Cano)

California. J. C. Elmore (September 21): The pepper weevil has caused light pepper drop this season, except in a few cases. Two early bell pepper fields near Santa Ana were 100 percent infested on September 15, but the large chili-pepper acreage in Orange and Los Angeles Counties has a good set of early pods beyond weevil attack. Population has built up in late pods but actual losses will not be heavy except in the number-two grade. The infestation was much higher in the San Luis Rey Valley of San Diego County, owing to milder winter temperatures. Treatment has been necessary, untreated fields having suffered heavy losses.

EGGPLANT

A MEMBRACID (Micrutalis calva Say)

Louisiana. H. L. Dozier (September 3): Small green and black treehopper breeding in abundance on eggplant tips at Opelousas. Generally distributed in gardens examined.

A TORTOISE BEETLE (Gratiana pallidula Boh.)

Louisiana. H. L. Dozier (September 3): The small green tortoise beetle appears to be generally distributed in the Opelousas section and is a minor pest of eggplants. Abundant all summer on the foliage.

TOBACCO

HORNWORMS (Protoparce spp.)

Maryland. E. N. Cory (September 24): There has been a heavy and general infestation of the tobacco hornworm throughout parts of the State where tobacco is grown. It has also occurred in considerable numbers on tomatoes, and in one instance on tobacco on the Eastern Shore. The heaviest infestation noticed was in Anne Arundel County, where several entire fields were not cut because they had been stripped. Severe stripping of the tobacco in the barn was reported from Anne Arundel, Prince Georges, and St. Marys Counties. In Anne Arundel County there appeared to be a low degree of parasitization, but reports from Prince Georges County at a later date indicated heavy parasitization.

Tennessee. L. B. Scott (September 3): Hornworms were present in normal numbers early in August, causing moderate damage to tobacco. Continued dry weather has delayed emergence and both species are now less than normally abundant.

TOBACCO BUDWORM (Heliothis virescens F.)

Maryland. M. D. Leonard (September 22): A grower reported that early in September serious damage was done by the budworm, in a 5-acre patch of tobacco south of Washington, D. C.

## C O T T O N I N S E C T S

### BOLL WEEVIL (Anthonomus grandis Boh.)

Georgia. P. M. Gilmer (August 30): In southern and central Georgia weevils are abundant in all fields. In late plantings of short-staple cotton bolls were produced only about one-half way up the plant. Undusted fields of Sea Island cotton show very heavy loss in bolls, while dusted fields show satisfactory control of the late weevils. The third-brood weevils are now emerging in considerable numbers.

W. L. Lowry (August 28): In Lowndes and Echols Counties boll weevils have increased rapidly during the last 2 weeks and practically all fields of Sea Island cotton are devoid of squares, blooms, and young bolls. A fairly good crop of mature bolls is present in restricted areas.

T. L. Bissell (September 17): Very injurious to Sea Island cotton at the station at Experiment, attacking squares and bolls. Three or four adults on a boll.

O. I. Snapp (September 9): Weather conditions during the last 3 weeks at Fort Valley have favored boll weevil development and the insect is abundant, causing considerable damage to the crop.

Mississippi. C. A. Henderson and J. E. Rugland (September 18): In Oktibbeha County practically all squares are now infested, although the crop is about matured.

E. W. Dunnam (September 4): In Washington County the weevil is damaging the late bolls and practically destroying all extremely late cotton. Excessive rains have caused most farmers to stop poisoning. (September 25): It is estimated there are at least one hundred times as many weevils on this date as there were last season.

C. Lyle (September 24): Reported numerous in all sections of the State, injuring most of the squares and some of the young bolls.

Louisiana. R. C. Gaines (September 18): Conditions continue favorable for the multiplication of boll weevils and indications are now that unless leaf worms soon become sufficiently numerous to strip the cotton, a large number will enter hibernation.

Oklahoma. C. F. Stiles (September 18): Generally present throughout the east side of the State and is destroying all of the late crop in Choctaw and McCurtain Counties.

Texas. K. P. Ewing and R. L. McGarr (September 18): Increasing in all fields where squares or young bolls are present. Some of the old cotton has been taken on new growth and is supplying abundant food for the weevils.



PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. A. J. Chapman and H. S. Cavitt (September 18): Records of infestation and crop conditions made during 1936 and 1937 in 30 identical fields in the Big Bend area of Texas show a higher and earlier infestation this year than last. During the latter part of August 1937 an average of 73 percent of the green bolls were infested, with an estimated larval population of 212,000 per acre, as compared with 37-percent boll infestation and 65,000 larvae per acre in 1936. During the week ended September 18, 1937, in the 19 fields examined the average percentage of green bolls infested increased to 97 percent, with 8.8 larvae per infested boll, in comparison with 90-percent boll infestation and 5.9 larvae per boll last year. However, the crop was also much further advanced and was maturing considerably earlier than last year, as shown by an average of 2.6 green bolls per plant in 1937 and 5.9 green bolls per plant in 1936, and the damage is not expected to be any greater than last year, despite the high infestation. (September 25): A total of 1,497 bales had been ginned up to September 24, as compared with 601 bales on the same date last year. Infestation counts made in 11 fields during the week showed 100-percent infestation of green bolls, with an average of 13.9 larvae per boll and 2.3 bolls per plant. Last year the same fields averaged 91-percent infestation at this date with 5.97 larvae per boll and 5.2 green bolls per plant.

COTTON LEAF WORM (Alabama argillacea Hbn.)

Georgia. W. L. Lowry (August 28): In Lowndes and Echols Counties, in southern Georgia, several specimens have been picked up recently but there is no general infestation.

P. M. Gilmer (August 30): A few have been noted in Lowndes and Cook Counties, but in Tift County none has been taken to date.

T. L. Bissell (September 16): Five moths were caught in a light trap on September 12, 13, and 14 at Experiment, the first individuals seen this year.

Tennessee. G. M. Bentley (September 24): In making inspection of our cotton fields in western Tennessee the week beginning September 20, no cotton leaf worms were found, and from county agents in the Cotton Belt we learned that no reports have been filed. The few leaf worms that occurred near Covington, in Tipton County, came very late, the first week in September, and caused practically no damage.

Alabama. J. M. Robinson (September 19): The cotton leaf worm is rather generally distributed over the State. It has ragged cotton in the central part of the State and may cause some damage to cotton in the northern part.

Mississippi. J. E. Ragland (September 18): In Oktibbeha County cotton leaf worms are quite numerous in one field but only a few were noted in other fields.

E. W. Dunnam (September 11): A few leaf worms appearing in some fields.

The first moth observed this season was taken in the Leland Post Office on September 4. (September 25): Can be found in a few fields but is making little progress.

C. Lyle (September 24): Damage has been reported from all sections of the State. Much cotton in the southern part of the State has been defoliated but not much damage is expected in the northern part.

Louisiana. R. C. Gaines (September 18): In Madison Parish, in the Delta section, leaf worms have not increased greatly during the last week. A few scattered fields have been stripped and a few more have been "ragged." (September 25): Leaf worms have not materially increased during the last week.

C. O. Eddy (September): Infestations have been widespread but more scattered than usual.

Oklahoma. C. F. Stiles (September 18): Present over most of the cotton-growing areas of Oklahoma. Comparatively few of the fields have been defoliated.

Texas. K. P. Ewing and R. L. McGarr (August 28): In Calhoun County the cotton leaf worm continues to slowly strip the fields of old cotton. Many fields are entirely stripped of all green foliage.

R. W. Moreland and A. B. Beavers (September 25): In Brazos and Burleson Counties leaf worms have completely defoliated a large acreage.

A. J. Chapman (September 11): Leaf worms are stripping the plants in spots in most of the fields near Presidio. The crop is too far advanced for them to do much damage.

#### BOLLWORM (Heliothis obsoleta F.)

Georgia. W. L. Lowry (August 28): During the last several weeks damage has been conspicuous in Lowndes and Echols Counties.

P. M. Gilmer (August 30): Scattering infestations in most fields in southern and central Georgia, although in fields close to corn heavy infestations are found. Upland cotton is largely past damage.

Mississippi. J. E. Ragland (September 4): In Oktibbeha County bollworms are becoming numerous and are doing some damage to small and medium-sized bolls.

E. W. Dunnam (September 11): A few bollworms have been noted and are doing some damage in rank cotton in Washington County.

Oklahoma. F. A. Fenton (September 20): Unusually abundant, as compared with a year ago. Widespread damage is being caused to cotton bolls and the bollworm is very common in alfalfa, sorghum, and late corn.

Texas. R. W. Moreland (September 18): In Brazos and Burleson Counties the moth population is fairly heavy in plots of young cotton. (September 25): Eggs averaged 4.8 per 100 terminal shoots in the plots examined this week.

K. P. Ewing (August 28): Damage continues serious in Calhoun County in nearly all young cotton, notwithstanding the fact that the cotton is being dusted fairly regularly.

COTTON FLEA HOPPER (Psallus seriatus Reut.)

Texas. K. P. Ewing and R. L. McGarr (September 4): Flea hoppers are very abundant on croton in Calhoun County, on the Gulf coast, but there are very few on cotton.

R. W. Moreland (September 25): The flea hopper population is light in the experimental plots at College Station, eastern Texas.

COTTON APHID (Aphis gossypii Glov.)

Texas. K. P. Ewing and R. L. McGarr (September 4): All fields of young cotton in Calhoun County show a very heavy infestation of aphids. (September 11): There has been an apparent let-up in the infestation and damage in young cotton, owing to rainfall.

Mississippi. E. W. Dunnam (September 25): Aphids can be found in small numbers in any field in Washington County but are not abundant enough to be serious.

Georgia. W. L. Lowry (August 28): Only those fields that have received regular treatment show infestation to any noticeable extent in Lowndes and Echols Counties.

Arizona. T. P. Cassidy (August 10): A very heavy infestation was reported on cotton in a 50-acre tract at Eloy and in a few adjoining fields. The terminal buds in these heavily infested areas were simply matted with lice and most all of the plants were covered with honeydew. In fact, the ground under many of the plants was brown from the honeydew that had dropped from them. Little or no parasitization was found in any of the fields. After a rain, however, the infestation disappeared.

California. C. S. Morley (September 3): Aphids may be found in practically every cotton field in Kern County. In some places the ground is discolored by honeydew; however, such infestations are seldom found.

POTATO LEATHOPPER (Ernoasca fabae Harr.)

Louisiana. H. L. Dozier (August 19): Very abundant on cotton at Sligo.

BEAN THRIPS (Heliethrips fasciatus Perg.)

California. C. S. Morley (September 3): Bean thrips plentiful on cotton in Kern County. In some areas where cotton plants did not receive sufficient water considerable injury occurred. Cotton plants were defoliated in parts of some fields.



FOREST AND SHADE - TREE INSECTS

FALL WEBWORM (Hyphantria cunea Drury)

Maine. H. B. Peirson (August 31): At Gardiner, near Augusta, the nests are very abundant on willows and elms.

Massachusetts. A. I. Bourne (September 20): The fall webworm has been scarce.

Rhode Island. A. E. Stene (September 21): Abundant in some parts of the State.

Maryland. E. N. Cory (September): General infestation of the fall webworm.

Georgia. O. I. Snapp (September 9): Weather conditions during the last 3 weeks have favored the fall webworm, which is unusually abundant at Fort Valley, central Georgia, and has caused considerable defoliation of pecan trees.

Ohio. T. H. Parks (September): More abundant than usual in shade trees and on fruit trees that did not receive after-bloom sprays.

N. F. Howard (September 20): Numerous in central Ohio but the colonies apparently have not thrived as well as they sometimes do. Although webs are present on a great many trees, they are not as large as usual.

Indiana. J. J. Davis (September 25): H. textor Harr. was reported abundant in elm, willow, and other trees in the southern part of the State early in September.

Illinois. C. L. Metcalf (September 21): Unusually abundant on elms and other shade trees.

Tennessee. G. M. Bentley (September 25): Comparatively little injury has occurred in the State. Heavy infestation usually occurs every second year.

Alabama. J. M. Robinson (September 19): Moderately abundant on pecans.

Mississippi. C. Lyle (September 24): Has been reported fairly abundant in the Jackson and Durant districts.

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma S. & A.)

Ohio. E. W. Mendenhall (September 4): Quite bad on elms in certain parts of Columbus.

Indiana. J. J. Davis (September 25): Defoliated maple trees at Frankfort the last of August.

DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsuga McD.)

Michigan. R. Hutson (September 20): Denuded evergreens at Dunbar.



A BAGWORM (Oiketicus townsendi Ckll.)

Arizona. C. D. Lebert (September 2): Several large ashes, elms, and poplars were defoliated in the Safford area.

A CATERPILLAR (Melipotis aconticides Guen.)

Puerto Rico. G. N. Wolcott (September 13): An extensive outbreak of this caterpillar was observed on the trees lining the road between Santa Rita and Guanica last week. The last outbreak of this caterpillar was in the Hate Rey and the Santruce-Condado section of San Juan (a different part of the island) in August 1933.

CARROT BEETLE (Ligyrus gibbosus Deg.)

North Carolina. E. G. Brewer (September 21): A nurseryman at Reynolds sent specimens of the carrot beetle stating that these beetles were causing considerable damage in his nursery by girdling the roots of various plants.

ALDER

A SAWFLY (Hemichroa pacifica Rohw.)

Washington. M. H. Hatch (September 22): Very great abundance. Alders stripped in August on Vashon Island, King County, and between Gig Harbor, Pierce County, and Bremerton, Kitsap County.

WESTERN TENT CATERPILLAR (Malacosoma pluvialis Dyar)

Washington. (September 22): A moderate number of nests of this species observed along the roadsides in central King County. The species has not been abundant in this locality since 1931. Moderate abundance on alder.

BEECH

BEECH SCALE (Cryptococcus fagi Baer.)

Maine. H. B. Peirson (September 14): Very heavy infestation in eastern Washington County and increasing in intensity.

OYSTERSHELL SCALE (Lepidosaphes ulmi L.)

New Hampshire. R. C. Brown (September 1): Abundant on many large woodland beech trees for at least 20 miles along the highways in Dublin. The foliage on the tips of many branches has turned brown.

BIRCH

BRONZED BIRCH BORER (Agrilus anxius Gory).

Wisconsin. E. L. Chambers (September 22): Throughout the State birch trees

exposed to the sun in home plantings continue to become infested almost the first summer after being planted and the borer is becoming prevalent in forest stands where the other trees have been taken out and the woods opened up.

BIRCH LEAF-MINING SAWFLY (Phyllotoma nemorata Fall.)

Maine. H. B. Peirson (September 14): On August 20, the infestation in the Dead River district, western Maine, was estimated to be mining 60 percent of the foliage and was very heavy. Trees appear brown over large areas at Bar Harbor and in the vicinity of Augusta.

CATALPA

CATALPA SPHINX (Ceratonia catalpae Bdv.)

Virginia. G. E. Matheny (September 9): Many catalpas practically defoliated by large caterpillars during summer and early fall.

Ohio. J. S. Houser (September): Many specimens of trees and smaller plantings along highways were observed late in the summer to be practically defoliated. One large plantation near Mechanicsburg, in west central Ohio, containing 125 acres of trees, some of which are 35 feet high, is reported to have been stripped of foliage during the last 4 weeks.

Indiana. J. J. Davis (September 25): Has been fairly abundant in all parts of the State. During September the common parasite Apanteles congregatus Say was unusually abundant at Lafayette, a large majority of the larvae being attacked.

ELM

MOURNING-CLOAK BUTTERFLY (Hamadryas antiopa L.)

Indiana. J. J. Davis (September 25): Was unusually abundant in a few localities in the northern end of the State early in September.

EUROPEAN ELM SCALE (Gossyparia souria Mod.)

Wisconsin. E. L. Chambers (September 20): The European elm scale, which was pretty well wiped out by the intense heat of the summer of 1936, began showing up by midsummer in several of the larger cities in southern Wisconsin.

FIR

AN APHID (Dreyfusia piceae Ratz.)

Vermont. H. J. MacAloney (September 23): In various localities in New Hampshire and Vermont the fir bark louse is increasing. Recently dead trees were beginning to become evident late in August and early in September.

Oregon. F. P. Keen (September 21): Some white fir twigs showing galls near Salem were determined by P. W. Mason as D. piceae.

### LARCH

#### LARCH SAWFLY (Lygaeonematus erichsonii Htg.)

General. G. E. Orr (September): Present in smaller numbers than has been observed for at least 15 years in most tamarack stands in the Lake States. This is largely because of the extreme heat and drought early in July 1936. Young sawfly larvae were abundant early in the summer of 1936, but nearly all of them died before reaching maturity. In some areas it has been almost impossible to find larvae in 1937, although reports of some defoliation in parts of upper Michigan have been received.

West Virginia. W. L. Maule (August 27): Specimens of pupal cases were taken in connection with infestation of European larch on the Rothkugel Plantation, Monongahela National Forest. (Det. by R. A. Cushman.)

### LOCUST

#### LOCUST LEAF MINER (Chalepus dorsalis Thunb.)

Rhode Island. A. E. Stene (September 21): Abundant near Westerly and locust groves were defoliated by the end of August.

Virginia. H. E. Hamric (August 17): They were found swarming over the locusts in Independence, Grayson County, and eating chlorophyll from the leaves to such an extent that the leaves were drying up, giving the leaves the appearance of having been bitten by a heavy frost. The locusts were attacked last year, but not to a harmful extent. This year they look as though they will die. (Det. by H. S. Barber.)

North Carolina. Z. P. Metcalf (September 18): I have never seen this insect more widespread or more injurious than it has been this year in the northwestern part of the State. In large areas every leaf of every tree is completely riddled. There are occasional areas where the damage is not so extensive and a few isolated trees are not damaged.

### MAPLE

#### GREEN-STRIPED MAPLE WORM (Anisota rubicunda F.)

Virginia. A. M. Woodside (September 20): Several young silver maples near Staunton have been defoliated for the third successive year.

#### A GALL INSECT (Dasyneura communis Felt)

New Hampshire. E. P. Felt (September 22): Red maple leaves with the veins almost entirely deformed by the maple gouty gall were received from Nashua, the infestation being extremely severe.



OAK

ORANGE-STRIPED OAK WORM (Anisota senatoria S. & A.)

Indiana. J. J. Davis (September 25): Abundant in August, defoliating oaks, particularly pin oaks, in Starke County, in the northern part of the State.

Michigan. R. Hutson (September 20): Has been abundant at Dunbar.

WALKINGSTICKS (Phasmidae)

Pennsylvania. F. W. Graham (September 10): Twelve to fifteen noticed on small growth of chestnut oak in Polk Township, Monroe County. Infestation heavy. Considerable feeding noted on large growth.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

Michigan. R. Hutson (September 20): Shows numerous infestations in Lakeland, Livingston County, and in Wayne and Monroe Counties.

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Comst.)

Mississippi. C. Lyle (September 24): Larvae of this species were reported injuring young pine at Lyon on September 1.

IMPERIAL MOTH (Eacles imperialis Drury)

Rhode Island. A. E. Stene (September 21): Caterpillars were sent in from Kent County with the complaint that they were defoliating white pine.

SEQUOIA PITCH MOTH (Vespamina sequoiae Hy. Edw.)

Washington. J. C. Evenden (September 1): Seriously injuring mature ponderosa pine at Spokane.

LODGEPOLE PINE NEEDLEMINER (Recurvaria milleri Busck)

California. G. R. Struble (September): A flight started on July 10 and subsided on August 15, with the peak occurring between July 25 and August 10. The heaviest centers of infestation are found within the Tuolumne watershed of the Yosemite National Park.

BLACK TURPENTINE BEETLE (Dendroctonus terebrans Oliv.)

Alabama. J. M. Robinson (September 19): Loblolly and longleaf pine were reported as being seriously attacked at Clanton.

Mississippi. J. Milton (September 24): Specimens were collected on pine at Jackson on September 17.



PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Utah. G. F. Knowlton (September 15): Pine needle scale is damaging ornamental Austrian pine, as well as some other pines and spruce, on the College campus at Logan.

POPLAR

POPLAR TENTMAKER (Ichthyura inclusa Hbn.)

Virginia. C. R. Willey (September 17): On a trip from Winchester, in the Shenandoah Valley, I noticed that practically all of the poplars along the way were defoliated.

Ohio. E. W. Mendenhall (September 4): The poplar tentmakers are quite bad in some of the poplars in Columbus and vicinity.

Kentucky. W. A. Price (September 24): Present in large numbers on poplar and willow trees at Walton.

SPRUCE

SPRUCE BUDWORM (Cacoecia fumiferana Clem.)

Massachusetts and Vermont. L. H. Noble (September 7): Heavy feeding on spruce and fir at Greenfield. Center of infestation appears to be about 2 miles north of the Wilmington, Vt., post office.

EUROPEAN SPRUCE SAWFLY (Diprion polytomum Htg.)

Maine. H. B. Peirson (September 14): The insect has increased at an alarming rate over last year and is now present all over the State wherever spruce occurs. Defoliation is noticeable and some trees have died in areas in Aroostook, northern Somerset, and northern Piscataquis Counties, on the watersheds of the St. John and Allagash Rivers. From all collections made at parasite liberation points of 1936, the parasite Microplectron fuscipennis Zett. has been recovered from cocoons collected at Presque Isle, Masardis, Bar Harbor, and in Township 12, Range 16.

New Hampshire. H. J. MacAloney (September 23): Approximately 1,250 acres of spruce on the north slope of Mount Monadnock is nearly defoliated and there is a medium-to-heavy infestation in 2,500 acres surrounding this area. Several smaller areas of heavy infestation were found in this general region.

Vermont. H. L. Bailey (September 27): Reported extremely abundant at Wilmington, south-central Vermont, and at Lincoln, central Vermont, both in Windham County.

F. A. Dailey (September 1): Complete defoliation observed in several solid stands of spruce at Wilmington. Isolated trees show 70 to 90 percent defoliation.

EASTERN SPRUCE BEETLE (Dendroctonus piceaperda Hopk.)

Vermont. J. V. Schaffner, Jr. (September 15): The outbreak reported last year in the Green Mountain National Forest still persists. Surveys conducted by the Forest Service show that newly infested trees are scattered throughout many areas of mature spruce. Control work is being carried on in areas where there are concentrations of infested trees.

ENGELMANN SPRUCE BEETLE (Dendroctonus engelmanni Hopk.)

Wyoming. J. C. Evenden (September 1): Heavy loss of Engelmann spruce throughout the northwest corner of Yellowstone National Park.

WILLOW

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora Laich.)

Maine. H. B. Peirson (September 1): Willows severely skeletonized and in general badly browned in areas in the vicinity of Ogunquit, York County (southern tip of State). Adults present.

Rhode Island. A. E. Stene (September 21): The imported willow leaf beetle has been unusually abundant and willows in many parts of the State have been defoliated.

A GALL INSECT (Rhabdophaga batatus Walsh)

Connecticut. E. P. Felt (September 22): Has been somewhat abundant and injurious on pussy willow at New Canaan.

I N S E C T S   A F F E C T I N G   G R E E N H O U S E

A N D   O R N A M E N T A L   P L A N T S

CHINESE MANTIS (Tenodera sinensis Sauss.)

Rhode Island. A. E. Stene (September 21): A Chinese mantis has been sent in from Narragansett. About 2 years ago we had a report which I think was the first.

Connecticut. W. E. Britton (September 21): Several adults have been brought to the station from New Haven, Orange, and West Haven, and reports indicate that the insect is common in Bridgeport and Norwalk.

BLACK BLISTER BEETLE (Epicauta pennsylvanica Deg.)

Maryland. F. F. Smith (September 20): Severely damaged China-asters in experimental plots at Beltsville. Softer inner parts of buds were eaten out as soon as bracts separated sufficiently for beetles to gain access to them.

Wisconsin. E. L. Chambers (September 20): Were unusually abundant during the latter part of August and the first part of September doing serious injury to garden flowers and vegetables.

A SCARABAEID (Ochrosidia villosa Burm.)

Connecticut. W. E. Britton (September 21): About 3 acres of lawn on a small estate in East Norwalk were badly damaged by grubs.

SOD WEBWORMS (Crambus spp.)

Florida. J. R. Watson (September 22): The grass webworm is responsible for considerable damage to grass, meadows, and lawns. It is not usual for this pest to be numerous at this time of the year. It is usually a spring pest.

Iowa. H. E. Jaques (September 24): Crambid moths are very abundant in flight.

HAIRY CHINCH BUG (Blissus hirtus Montd.)

Rhode Island. A. E. Stene (September 21): A large lawn in Providence was destroyed about the middle of August. Some previous trouble with the lawn had been experienced, but the owner did not report the situation until destruction was complete.

Connecticut. W. E. Britton (September 23): Several instances of severe damage to bentgrass lawns in New Haven have come to our attention during the last month.

Ohio. J. S. Houser (September 15): Several instances of damage to lawn grass have been reported from the Cleveland area. The greatest damage occurred late in August and early in September.

A PLANT BUG (Corizus sidae F.)

Georgia. T. L. Bissell (September 15): Bug abundant and injurious on althea at Experiment, central Georgia.

GARDEN FLEA HOPPER (Halticus citri Ashm.)

Maryland. F. F. Smith (September 20): Abundant at Beltsville where white clover in lawns, asters, and chrysanthemums are being attacked. At Silver Spring adults and nymphs are numerous and are causing conspicuous injury on ageratum, dahlia, yarrow, salvia, crimson clover, white clover, turnip, beet, and melon. No injury observed at Silver Spring in 1936.

Mississippi. C. Lyle (September 24): The garden flea hopper was injuring violets at Jackson on September 17 and verbena at Starkville on September 22.

A MIRID (Plagiognathus politus Uh1.)

Illinois. C. L. Metcalf (September 21): Was very abundant late in August and early in September in gardens in central Illinois, attacking Funkia, zinnia, dahlia, aster, and other flowers.



TWO-MARKED TREEHOPPER (Enchenopa binotata Say)

New York. R. E. Horsey (September): On September 20 a number of egg masses were found on Viburnum rufidulum and a few on V. carlesi in Rochester.

A WHITEFLY (Dialeurodes sp.)

North Carolina. Z. P. Metcalf (September 18): About the usual number of complaints. Damage moderate to privet hedge in the eastern part of the State.

Georgia. O. I. Snapp (September 9): Whiteflies are unusually abundant, and have caused considerable damage to shrubbery in the yards at Fort Valley, central Georgia.

Mississippi. C. Lyle (September 24): Specimens of the citrus whitefly were collected on privet at Columbia on September 5. It was reported present on ornamentals in the Meridian and Brookhaven territories and on satsuma at Moss Point.

COTONEASTER

LEAF CRUMPLER (Mineola indigenella Zell.)

Nebraska. M. H. Swenk (September 22): The leaf crumpler was reported attacking cotoneaster plants in Sheridan County on September 6.

DAHLIA

A TREEHOPPER (Entylia sinuata F.)

Louisiana. H. L. Dozier (September 16): Small treehopper becoming more abundant, breeding on the underside of dahlia foliage at Opelousas.

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

District of Columbia. E. W. Cory (September 24): Noted on euonymus in Washington, D. C.

North Carolina. Z. P. Metcalf (September 18): Damage severe to euonymus over the whole State.

FERN

AN APHID (Idiopterus nephrolepidis Davis)

New Jersey. M. D. Leonard (May 2): At Ridgewood the new shoots, especially of a large potted plant of Boston fern in the house, are infested with a great many of this rather rare aphid.



GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips simplex Morison)

Connecticut. W. E. Britton (September 21): The gladiolus thrips seems to be less troublesome generally than for several years. Specimens have been received from Lakeville and Woodbridge.

Wisconsin. E. L. Chambers (September 20): Has been very serious to untreated plantings throughout the State, and many commercial growers who were careless about the treatment, or where there were untreated plantings nearby, suffered serious losses.

HAWTHORN

WOOLLY APPLE APHID (Eriosoma lanigerum Hausm.)

New York. R. E. Horsey (September): Some infestation on several hawthorns but only one tree found badly infested causing defoliation on September 20 at Rochester. This aphid was formerly a severe pest, appearing in numbers in August.

PEAR SLUG (Eriocampoides limacina Retz.)

New York. R. E. Horsey (September): Considerable damage to the leaves of the Dunbar hawthorn, with a large number feeding on August 24. Two trees of black hawthorn and one tree of Japanese Flowering Cherry were found with almost all the leaves badly eaten. The last live slugs were found on September 8 at Rochester.

LILAC

LILAC BORER (Podsesia syringae Harr.)

New York. R. E. Horsey (September): Very numerous and destructive in lilacs during September at Rochester.

RHODODENDRON

RHODODENDRON LACEBUG (Stephanitis rhododendri Horv.)

Connecticut. W. E. Britton (September 21): Rhododendron and mountain laurel plants in nurseries have been commonly infested and specimens on rhododendron have been received from Bantam, New Britain, New London, Westport, and Woodbridge.

INSECTS ATTACKING MAN AND

DOMESTIC ANIMALS

MAN

MOSQUITOES (Culicinae)

New Jersey and New York. W. Hande (September 22): The common swamp mosquito (Aedes vexans Meig.) and the salt-marsh mosquito (A. sollicitans Walk.) were not particularly severe this last season in New Jersey and on Long Island, N. Y., at least not up to the early part of September.

New Jersey and Maryland. W. Hande (September 22): The northern house mosquito (Culex pipiens L.) was abundant and annoying late in August and early in September at isolated points in New Jersey and Maryland.

Virginia. H. G. Walker (September 25): Mosquitoes were very abundant in many places on the Eastern Shore of Virginia during the early and middle parts of July. It was reported that they were killing wild ponies and other animals on Chincoteague Island.

Georgia. T. L. Bissell (September 8): Mosquitoes, Culex spp., have been very troublesome in houses at Experiment for 2 weeks.

EYE GNATS (Hippelates spp.)

Maryland. E. C. Cushing (September 27): In Silver Spring eye gnats were troublesome during the early part of the month.

CAT AND DOG FLEAS (Ctenocephalides spp.)

Maine. H. B. Peirson (August 20): C. felis Bouche and C. canis Curt. are reported from Augusta as being very abundant in houses and lawns.

Rhode Island. A. E. Stone (September 21): A larger number of complaints than usual have come in from returning vacationists regarding the abundance of fleas encountered when they returned to their homes.

New York. R. W. Leiby (September 7): The cat flea has overrun the State during the last 6 weeks, if complaints from correspondents are an indication of its prevalence. Many lots identified by R. Matheson show that the cat flea is the only offender.

North Carolina. Z. P. Metcalf (September 18): There have been more complaints of fleas than for many years.

Indiana. J. J. Davis (September 25): The cat and dog fleas are more abundant in farm buildings and homes in all parts of Indiana than we have ever before observed. Most of the reports came to us the last of August and in September.

Illinois. W. P. Flint (September 20): Numerous reports of flea infestations, both in towns and on farms, have been received during the month.

Michigan. R. Hutson (September 20): Cat and dog fleas have been especially abundant all over the Lower Peninsula.

Nebraska. M. H. Swenk (September 22): Reports of infestation of a basement and a house by the dog flea came from Dodge County on August 24 and September 12.

SADDLEBACK CATERPILLAR (Sibine stimulea Clem.)

Maryland. E. C. Cushing (September 10): Several specimens of this species of urticating lepidopteron were collected from a privet hedge in Silver Spring. Each specimen collected was found after it had stung the person who was clipping the shrubbery.

Indiana. J. J. Davis (September 25): Received from several localities in eastern and northern Indiana, where it was commonly found on corn, some observers reporting irritation caused from handling corn infested by the caterpillars. All reports received in the last few days of August.

Connecticut. W. E. Britton (September 21): Larvae have been received as follows: On corn from New Haven, on dahlia from Derby, on rose from Milford, and without food plant from Branford.

Maryland. E. N. Cory (September 24): Noted on poinsettia in Prince Georges and Allegany Counties.

PUSS CATERPILLAR (Megalopyge opercularis S. & A.)

Mississippi. K. L. Cockerham (September 21): One larva was brought to Biloxi, with the statement that a man had been "stung" by the insect. The larva had fallen from an oak tree and the man had brushed against it with his arm. The "sting" was reported as being very painful, but the man did not receive medical attention. On September 11, a larva was brought in by a woman who had been "stung" on the wrist by it. She stated that she experienced severe pains throughout her arm and had received treatment from a physician. On September 18 another specimen was brought in, with the statement that a small child had been "stung", and had been threatened with convulsions. The child was treated by a physician, who informed me that no serious or unusual reactions were noted by him when the child was brought to his office. In both instances the larvae had dropped from pecan trees.

C. Lyle (September 24): Larvae have been received from Sontag, Heidelberg, Booneville, and West Point. It was reported that at each of these places some person had been injured by the sting of this caterpillar.

AMERICAN DOG TICK (Dermacentor variabilis Say)

Massachusetts. C. N. Smith (September 1): Activity of adult ticks at Martha's



Vineyard, practically ceased during the last 2 weeks of August. The latest collection was an engorged female taken from a dog on August 29 and an unattached male from a man on the same date.

A. E. Stene (September 21): Collected on Cape Cod in an effort to determine whether they were carriers of the Rocky Mountain 'spotted' fever, which two people from Providence contracted while vacationing on the cape.

EAR TICK (Ornithodoros megnini Duges)

Nebraska. M. H. Swenk (September 22): The spinose ear tick was infesting the ear of a horse in Sheridan County on September 4.

RABBIT TICK (Haemaphysalis leporis-palustris Pack.)

Nebraska. M. H. Swenk (September 22): Specimens were sent from Douglas County on September 9, with the report that the tick was infesting dogs and had also been found alive in the house.

Correction.--In the Insect Pest Survey Bulletin Vol. 17, September 1, 1937, (no. 7, p. 376), regarding the American dog tick in Connecticut, by P. Garman, the name should read, "Rhipicephalus sanguineus Latr."

BLACK WIDOW SPIDER (Latrodectus mactans F.)

Virginia. H. G. Walker (September 25): Appears to be common in eastern Virginia. Specimens have been taken in flower gardens, in buildings, under boards and stones, and in melon and cornfields.

Georgia. T. L. Bissell (September 8): Several reports have come in showing an abundance of this spider. Recently a man in Spalding County, central Georgia, died of a spider bite. On September 4 a woman at Experiment was bitten. A correspondent at Clarkston reports black widows on the stairs leading to the second floor. I have seldom heard of this spider in houses.

Nebraska. M. H. Swenk (September 22): Reports of the presence of black widow spiders in such places as caves, house basements, around a schoolhouse, and in drainage culverts, came from several counties during the period August 25 to September 18.

Utah. G. F. Knowlton (September 18): A number of reports of black widow spiders found in houses and barns have been received during the season.

CATTLE

SCREW WORM (Cochliomyia americana C. & P.)

South Carolina. R. A. Roberts (September 30): Cases estimated in different



counties for the 2-week period ended September 10 were: Beaufort 125, Jasper 125, Colleton 125, Hampton 60, Allendale 35, Charleston 15, Berkeley 10, Dorchester 5, Bamberg 8, Orangeburg 2, and Barnwell none. For the last 2 weeks of September the estimated cases were: Colleton 175, Dorchester 75, Beaufort 22, Hampton 24, Barnwell none, and Aiken none. On September 29 specimens were identified from Sumter.

Georgia. R. A. Roberts (September 30): For the week ended September 2 there was a generalized occurrence of 5,735 estimated cases, principally in the open-range areas, but with small numbers occurring in the farming counties. An outbreak proportion of about 600 cases occurred in Brooks County. For the last 2 weeks of September the infestation of the State was estimated at 8,851 cases. These cases occurred south of a line drawn from Richmond to Webster Counties.

Florida. R. A. Roberts (September 30): For the 5-week period ended September 25, there were 7,707 cases occurring among 822,221 animals. Decreased numbers of infestations are occurring in the southern part of the State, and increased numbers in the northern areas, especially in tick bites of woods hogs and cattle. The most western infestation occurs in Gadsden County, where a localized outbreak now seems to be under control.

Alabama and Louisiana. W. E. Dove (September 30): Questionnaires sent by State cooperators and only negative reports of cases received by them.

Kansas. W. E. Dove (September 30): The following were reported for the month ended September 15: Butler County shipment of 900 ewes received at Augusta where a number of cases are giving trouble, Clark County none this year, Coffey County no cases, Marion County no cases, Woodson County 22, Chase County 43, and Chautauqua County 1,610.

Oklahoma. W. E. Dove (September 30): The following reports were received: Love County 5, Marshall County 1, Bryan County 1, and McClain County none. In Osage County stockmen are continuing to ride the ranges and treat cases.

Texas. W. E. Dove (September 30): In the southern counties of Texas 2,231 cases were reported among 1,222,926 animals for the 5-week period ended September 25. Along the coast localized outbreaks on some ranches exceeded a 2-percent infestation of the animals and were caused principally by attachment of the Gulf coast tick (Amblyomma maculatum Koch). In the sheep- and goat-breeding area cases were rare in the lowlands but are now increasing at higher elevations in pricklypear injuries of the mouth. Stockmen in 17 counties of the eastern portion of the sheep- and goat-breeding area report 1,765 cases among 68,608 animals. In eastern Texas, where cattle are being dipped for eradication of the fever tick Boophilus annulatus Say, no cases of screwworms are encountered. In northern Texas and in the Panhandle cases are rare and the incidence is unusually low for this season of the year.

New Mexico. W. E. Dove (September 30): In Otero County 50 cases were reported from marks and brands in 1,000 cattle, in Luna County 2 cases occurred

among 510 dehorned calves, in Socorro County there were practically no cases, in Eddy County 125 cases were estimated, in Hidalgo County 6 cases were reported in 450 calves, in Harding County about 15 percent of the brands made early in August became infested late in August and early in September, in Lincoln County practically no cases occurred, and in Dona Ana County 43 cases were reported. Recent rains favor increased numbers of cases.

HORN FLY (Haematobia irritans L.)

Texas. E. C. Cushing (September 27): Reports on September 15, from dairymen and stockowners in Eastland County, indicate extreme annoyance from horn flies, with considerable loss of milk flow and weight of animals, even on good pastures.

E. W. Laake (September 20): The population at Fort Worth is on the increase and the flies are exceedingly bothersome to cattle. One ranch foreman reports that in pastures with growth of tall weeds the cattle remain in these areas all day to escape the flies, feeding only at night. In one herd an average of 4,000 flies were estimated on each animal. The injuries caused by the flies are becoming infested with screwworms.

CATTLE GRUB (Hypoderma sp.)

Arizona. C. C. Deonier (September 27): At Tempe observations of cattle in the Salt River Valley showed that at Mesa a few larvae had already reached the backs of the animals on August 17.

HORSE

STABLEFLY (Stomoxys calcitrans L.)

Missouri. L. Haseman (September 23): Throughout September stableflies have continued to be annoying to livestock in central Missouri and during the third week in September, following several days of cool weather, there seemed to be a marked increase in numbers.

Kansas. H. O. Schroeder (August 22): The following observations on the stablefly outbreaks in south-central Kansas from July 23 to August 22 have been reported: This was the heaviest outbreak of stableflies in this region in 15 years. Horses and cattle in many cases were literally exhausted from fighting the flies. Calves suffered particularly. Open wounds 2 inches across were found at the joints of the legs. Even on the backs of some animals areas were depilated and encrusted, or even raw. Many farmers confined their horses in darkened barns during the day. Work animals were handled with difficulty, notwithstanding partial protection afforded by nets and burlap. Man, too, was subject to their vicious attacks and found them as annoying and persistent as mosquitoes. On several occasions, while operating a tractor in the middle of a field, the writer counted more than two dozen on each trouser leg and found them extremely annoying, when the hands were occupied in making adjust-

ments. The flies were less evident and sometimes entirely inactive during the noon-day heat when the temperature approached or passed 100° F. On several days the shaded side of a stock tank was covered with stableflies at the rate of from 100 to 200 per square foot, no doubt attracted by the cooling effect of the water within the tank. A considerable reduction in abundance occurred during the third week in August. Heavy local rains fell in the area from July 10 to 20, followed by 3 weeks of hot, dry weather. More general rains occurred after August 11.

Utah. G. F. Knowlton (September 13): Stableflies are abundant and annoying to livestock at Logan in northern Utah.

#### POULTRY

##### STICKTIGHT FLEA (*Echidnophaga gallinacea* Westw.)

Oklahoma. F. A. Fenton (September 20): The chicken sticktight flea is reported from several places.

#### RABBIT

##### RABBIT BOT (*Cuterebra* sp.)

North Carolina. Z. P. Metcalf (September 18): Damage severe in Buncombe County. One to three bots per rabbit.

#### HOUSEHOLD AND STORED-PRODUCTS INSECTS

##### TERMITES (*Reticulitermes* sp.)

Ohio. J. S. Hauser (September 15): Damaging rhubarb at Cincinnati. The correspondent reports that the occurrence is common in home gardens and that the damage is somewhat severe.

Mississippi. C. Lyle (September 24): Reports of injury to buildings by termites have come from all sections of the State.

Nebraska. M. H. Swenk (September 22): Complaints of damage by termites were received during the period of August 20 to September 6 from Otoe, Clay, Franklin, and Custer Counties. The report from Custer County indicated that the pest was damaging wool blankets in a basement, and the Clay County correspondent stated that the joists and siding of a house were being attacked.

Oklahoma. F. A. Fenton (September 20): There have been the usual large number of inquiries concerning the termite damage to buildings.

##### HOUSE CRICKET (*Gryllus domesticus* L.)

Virginia. C. R. Willey (September 17): This cricket, about the first of August, "swarmed" out of a city dump here in Richmond and almost drove folks who



lived nearby from their homes. They seemed especially fond of stockings and certain other wearing apparel.

Wisconsin. E. L. Chambers (September 20): A serious outbreak of the European house cricket occurred in Kenosha and Milwaukee, where swarms of them migrated from city dumps and waste land into the downtown stores. They did serious damage by eating threadon leather goods, drapes, rugs, etc. The infestation first appeared about the first of September.

FIELD CRICKET (Gryllus assimilis F.)

Nebraska. M. H. Swenk (September 22): Complaints of annoyance from the field cricket in and around houses were received during the latter part of August from Lancaster, Saline, and Jefferson Counties.

Kansas. H. R. Bryson (September 29): A considerable decrease in the number of black crickets has taken place during the week ended September 25.

ARGENTINE ANT (Iridomyrmex humilis Mayr)

Mississippi. C. Lyle (September 24): Specimens of the Argentine ant were received from North Carrollton on August 27 and from Jackson on September 14.

PHARAOH'S ANT (Monomorium pharaonis L.)

Mississippi. C. Lyle (September 24): Specimens of this ant were received from West Point on September 20.

MARITIME EAR WIG (Anisolabis maritima Bonelli)

Rhode Island. A. E. Stene (September 21): The maritime ear wig was sent in from a Washington County shore resort with the complaint that they were over-running a summer cottage "by the million."

Virginia. C. R. Willey (September 17): On August 21 this pest was found damaging plants in a garden here in Richmond. They were present by hundreds. Our first record of its occurrence and damage.

BOXELDER BUG (Leptocoris trivittatus Say)

Iowa. H. E. Jaques (September 24): We have a serious complaint of boxelder bugs invading homes in Linn County. This species seems to be up to its normal abundance at least.

A SPIDER BEETLE (Ptinus tectus Boieldieu)

Washington. M. H. Hatch (September 22): Specimens of this species were reported this summer from a residence in the Laurelhurst district in Seattle.

A WEEVIL (Brachyrhinus sp.)

Rhode Island. A. E. Stene (September 21): A weevil was sent in from East Providence with the complaint that such insects were coming into the house in large numbers.



SOUTHERN PINE SAWYER (Monochamus titillator F.)

Louisiana. A. K. Smith, Jr. (September 9): Specimen collected at Opelousas, infesting fence posts. (Det. by A. G. Boving.)

AN ANOBIID (Xyletinus peltatus Harr.)

Mississippi. C. Lyle (September 24): Complaints of this insect in pine floors were received from Leland on August 28 and from Charleston on September 17. Specimens were received from Liberty on September 2.

Special note.--A native American plant, Salvia reflexa, belonging to the mint family, has become a noxious weed in Australia. It would be of considerable interest if entomologists within the range of this plant in the Great Plains and Rocky Mountain States would report on all insects that have been recorded from this plant.

1. The first part of the paper is devoted to a general discussion of the problem.

2. The second part is devoted to a detailed study of the case of a single particle.

3. The third part is devoted to a study of the case of a system of particles.

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